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*ITS ÆTIOLOGY, ANATOMY,
AND OPERATIVE TREATMENT.*

BY

PARKER SYMS, M. D.

REPRINTED FROM THE

New York Medical Journal

for October 2, 1897.

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By PARKER SYMS, M. D.

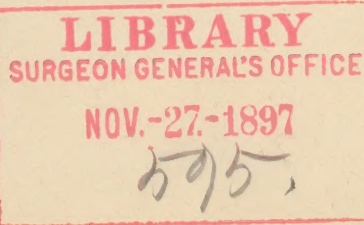
THE condition to be described is a complex one, involving the structures which form the metatarso-phalangeal joint of the great toe, and the superficial tissues in its region.

Bunion was the name originally given to this condition when it was considered to be merely an inflammation of a bursa on the inner side of this joint. Hallux valgus is the proper name of the deformity which is the cause of this bursitis. The bunion is always a secondary condition, and is merely a result of the deformity of the toe.

The name hallux valgus should displace the popular term bunion, but it probably will never do so with the laity. By hallux valgus is meant an outward displacement of the first phalanx of the great toe to a greater or less degree, varying from a slight divergence from a straight line to a divergence equal to a right angle.

The cause of this deformity of the foot is the wearing of shoes which are faulty in shape or are ill fitting. A shoe that crowds the toes together or pushes the great toe backward will tend to produce this trouble. In this class are shoes with the following characteristics:

* Read before the Society of Alumni of Bellevue Hospital, May 5, 1897.



First, shoes with narrow points, with the point in the median line; second, shoes that are too short; third, shoes that are so loose at the instep as to allow the foot to ride forward, and thus bring direct backward



FIG. 1.—Type of hallux valgus. Shows: *a*, hypertrophied end of metatarsal bone; *b*, hypertrophied "condyle" on inner side of metatarsal bone; *c*, outward displacement of phalanx; *d*, inward displacement of metatarsal bone; *e*, partial dislocation of phalanx.

pressure on the toes; fourth, the worst of all, are shoes which combine two or all of these defects. Some pointed lasts are so constructed that the point is on the inner side of the shoe, and the toe is not necessarily displaced.

This deformity has been ascribed to osteoarthritis, to suppurative arthritis, to rheumatism, and to gout; but bad shoes are its cause, and the arthritis is the result of the displacement they produce, and of the injury they do to the joint. From the nature of the cause, and from the characteristics of this disease, will

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be readily understood the facts that it is more common in adults than in children, and more frequently found among women than among men.

The condition will vary a good deal in different instances. In mild cases there is but slight deflection of the toe outward, and little or no dislocation. This deflection allows the pressure of the shoe to come on the inner side of the head of the metatarsal bone, and the consequent irritation will result in a periostitis and a hyperplasia of bone at that site, finally amounting to an exostosis. Ere long the pressure between the exostosis and the shoe will produce an inflamed bursa, and there is then a mild case of so-called bunion.

A more advanced case will show a decided hypertrophy of the whole inner side of the head of the metatarsal bone, resulting in its elongation as well as its thickening, so that added to a marked prominence over the joint there is a decided change in the direction of the articular surface, and a consequently increased valgus.

From this stage or degree on, the increased deformity is owing rather to pathological changes than to mechanical conditions. A chronic arthritis is established. The internal lateral ligament is stretched, the external one is contracted. The joint surfaces may become eroded or eburnated. The weakened support finally allows complete dislocation, so that the toe will lie at an angle, perhaps a right angle, across its fellows. The tendons will of course become displaced. Some surgeons have made the mistake of considering the displaced sesamoid bones (in the tendons of the flexor brevis) as the cause of the trouble and not as one of the results.

There is a general hyperplasia of all the tissues about the joint, besides the thickening of the bone itself. There is also a displacement of the metatarsal bone inward, so that there is quite a wide gap between the first and second bones.

The bursa continues its annoying course, being the seat of a chronic remittent inflammation with severe

exacerbations. When it becomes duly infected it will suppurate, and if not properly opened will infect the joint either by extension or by rupture into it. In some cases it will become the starting-point of a severe cellulitis of the foot and leg; in this manner it has proved fatal. There is usually a corn or callosity over the bursa, which acts in concert with the hypertrophied bone beneath it in making the patient miserable.



FIG. 2.—Shows : *a*, hypertrophied end of metatarsal; *b*, hypertrophied condyle on inner side of metatarsal; *c*, outward displacement of phalanx; *d*, inward displacement of metatarsal bone; *e*, partial dislocation of phalanx.

In many cases hallux valgus is associated with hammer-toe in the second and third digit, which results from the same cause.

In cases of long standing the joint may become fixed by a true or false ankylosis, and all the symptoms of the acute attacks may cease, nothing remaining but the deformity.

The deformity will depend upon the duration and severity of the case, and need hardly be further dwelt upon here. It is the outward expression of the anatomical changes already described. There will be added to this either complete or partial loss of joint

function, always limited motion, joint crepitus, and tenderness.

The subjective symptoms consist in pain, tenderness, the consequent disability, and a peculiar shuffling gait. Of course, these conditions are exaggerated during an acute attack of inflammation, but except in cases of long standing in which ankylosis has taken place these patients are constant sufferers.

Very early cases may be relieved and farther progress stopped by careful attention to the shoes. A slight



FIG. 3.—Skiagraph taken after operation in a case where there was—*a*, complete dislocation of phalanx; *b*, toe adducted to right angle to metatarsal bone; *c*, great hypertrophy of end of metatarsal bone; *d*, greatly hypertrophied "condyle" on metatarsal bone.

In Case III the clinical result was perfect as to shape and position of toe, cure of bunion, and restored function.

Operation was resection of head of metatarsal and of the hypertrophied lateral mass.

degree of deformity may be corrected by means of pads or splints which will place and retain the toe in its proper position; but a well-advanced case will not be cured by any means except an operation.

An acute attack of inflammation should be treated by rest, disinfection, and the application of such an evaporating lotion as the liquor aluminæ.

Probably viewing this disease from various standpoints has led surgeons to employ quite widely differing methods.

Ullmann * has advised a very elaborate procedure, consisting in arthrotomy, ablation of the sesamoid bones, and a transplantation of the tendons. Riedel † recommends a longitudinal osteotomy of the inner side of the metatarsal bone, and excision of the base of the first phalanx. Some have advised simple transverse or cuneiform osteotomy of the shaft of the metatarsal bone above, and not entering the joint. Fowler ‡ recommended a resection of the head of the metatarsal bone. He made use of the incision between the first and second toes, as devised by Peterson * for arthrectomy of this joint in cases of tuberculosis.

Dr. Robert F. Weir has recently described before the New York Surgical Society an operation similar to, but much more comprehensive than, the operation of Ullmann.

Most authors advise removal of the bursa by careful dissection.

My own experience with these cases has taught me to be guided by the following principles: First, to employ different operative procedures according to the degree and character of the deformity.

Second. Never to operate during an acute attack of inflammation.

Third. Always to treat the deformity, and never operate on the bursa, for it will take care of itself after its cause is removed. The exceptions to this rule are the removal of callosities from the bursa when they exist, and the incision of bursæ when they suppurate.

Fourth. Never to make the operation incision around the bursa or through the bursa for two reasons: first, because it would leave a scar where the shoe presses

* *Wiener med. Wochenschrift*, 1894, No. 49, 2089.

† *Centralblatt für Chir.*, No. 44, October 30, 1886.

‡ *Medical Record*, 1889, vol. xxxvi, p. 253.

* *Archiv für klinische Chirurgie*, Bd. xxxvii, 677, 1888.

most; second, the operation would be through an area of infected tissue.

Fifth. Never use an Esmarch's bandage.

Sixth. Close the wound by suture, without drainage.

Seventh. Give careful attention to the after-treatment. Proper shoes must be worn, or a relapse will be probable.

I have found an incision about an inch in length on the dorsum of the toe thoroughly satisfactory. In a mild case, after retracting the tendon of the extensor proprius pollicis outward, I chisel off all the over-prominent portion of the inner side of the head of the metatarsal bone, removing as much bone as is necessary to do away with all protuberance. Then suture the wound and let it heal under one dressing. Usually the patient can walk about after the first week.

In more severe cases, where there is a marked adduction as well as lateral dislocation, I remove the head of the metatarsal with a chisel or bone forceps, and also cut off the prominent inner side of that bone. To resect the head of the metatarsal bone it will be necessary to divide the lateral ligaments and completely dislocate the toe. This can be done with ease and satisfaction through the simple straight incision I have described. It is necessary to remove so much bone that the toe will readily come into place and have no tendency to displacement. If this is not accomplished by the first ablation more bone must be removed.

The dressing must be carefully made so as to hold the toe in good position. I always secure the toe by means of pads and put a plaster-of-Paris bandage over the entire dressing. I use catgut sutures, and leave the original dressing on two weeks. I encourage the patient to walk in the third week. For some time the toe will be liable to displacement, and a good result can not be expected unless the after-treatment is carefully carried out. In my experience it is seldom necessary to do this resection of the head of the bone.

A thorough removal of the inner "condyle" will

cure the majority of cases. The skiagraph will show this to be the case. It will also show that the simple removal of the end of the bone is not sufficient; there must be a removal of all the overprominent lateral mass.

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THE New York Medical Journal.

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